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An interactional approach to investigating individual creative performance

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AN INTERACTIONAL APPROACH TO INVESTIGATING INDIVIDUAL CREATIVE PERFORMANCE

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ABSTRACT

AN INTERACTIONAL APPROACH TO INVESTIGATING INDIVIDUAL CREATIVE PERFORMANCE

by Norman R. Lopez

Creative performance was examined by investigating the interactive effects of organizational promotion of risk-taking, supervisory support, and individual creative self-efficacy. A total of 133 (males = 78, females = 53) currently employed graduate and undergraduate university students and their supervisors (ages 18 to 54) participated in the study. Students' data were collected during university class sessions using six instruments intended to measure participants' creative self-efficacy, perceived supervisor support, mood, creative personality, creative performance, and organization's level of promoting risk-taking. Supervisors were mailed a creative performance survey to rate students' creative performance. Hierarchical and moderated hierarchical regression analyses indicated that an individual's level of creative self-efficacy was positively related to their creative performance. Organizations that want employees to perform creatively may want to recruit individuals with high levels of creative self-efficacy.

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Over the last few years, surveys conducted in American businesses show that most business owners value creativity (Buhler, 2001). Since organizations have become increasingly competitive, they need more creative persons who can solve complex problems (King, 1998). In addition, the greater the autonomy, complexity, and demand of a job, the greater the creativity requirements are of that job (Shalley, Gilson, & Blum, 2000).

The present study investigated the main and moderating effects of (i) creative self-efficacy, (ii) supervisor support towards creativity, and (iii) organizational promotion of risk-taking in relation to employee creative performance. Empirical studies investigating the joint effects of individual and contextual factors in relation to creativity are few (Livingstone, Nelson, & Barr, 1997). Therefore, this study contributes to the growing, yet limited, creativity literature that examines the interaction between individual and contextual factors.

Amabile (1988) defines creativity as the production of novel and useful ideas, products, or procedures from a single person or group of persons working together. In contrast, Amabile defines innovation as the successful use and implementation of creative ideas within an organization. According to Amabile, creativity is the foundation for innovation, such that innovation cannot take place without creativity. Although other researchers (e.g., Scott & Bruce, 1994) do not make this distinction, the present study adapts Amabile's definition of creativity given its popularity in the literature (e.g., Oldham & Cummings, 1996).

A positive aspect about the previous literature on creativity is that it provides much research on individual and environmental influences on creative behavior. There have been many studies that have examined the associations between individual characteristics (e.g., risk-taking preferences, intrinsic motivation) and creative performance (Livingstone et al., 1997). A large proportion of the research has also studied correlations between environmental factors (e.g., expected reward, coworker support for creativity) and creative performance, although to a lesser extent (Livingstone et al., 1997). Another positive aspect is that there is agreement within the creativity literature. For instance, a large body of empirical evidence agrees that working in order to receive a reward decreases the creativity of the work (Hennessey, 1995).

There are several things that are lacking from the current body of creativity research. In order to gain a complete understanding of creativity in complex social situations (such as those found in organizations), researchers must look beyond the individual factors and also examine the situational context in which the creative behavior takes place (Woodman, Sawyer, & Griffin, 1993). This suggests that more research needs to be done that examines situational contexts as well as individual characteristics resulting in creative performance. Lastly, single factor, non-interactional studies are not reflective of the real world. Factors do not operate in a vacuum, which is why more interactional research needs to be conducted.

The present study contributes to the literature in two ways. First, the study examined employees' perceptions of organizational promotion of risk-taking and creative self-efficacy in relation to creative performance, a relationship that has not been studied

in the past. In addition, the present study examined the joint effects of individual and contextual factors on creative performance. In other words, the present study contributes to the creativity literature that examines creativity from an interactionist perspective. The present study did more than link single variables (e.g., divergent thinking) to creativity like most past research (Linvingstone et al., 1997). The present study aims to address the small amount of research that examines creativity from an interactionist perspective.

Personal Characteristics Predicting Creative Performance

Most of the research conducted in the creativity literature has examined personality traits and what role they play in relation to creative behavior (Livingstone et al., 1997). Some of the individual factors that have been linked to individual creativity are intrinsic motivation (Amabile, 1988), playfulness (Stein, 1991), hard work (Amabile, 2001), convergent and divergent thinking (Cropley, 1999), confidence and autonomy (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington, 2000), and mood states (Madjar, Oldham, & Pratt, 2002). The current study will focus on the individual characteristic of self-efficacy, which is defined as an individual's judgment of their perceived capability for accomplishing a certain task, and in the case of the current study a creativity task (Gist & Mitchell, 1992). Examining self-efficacy in relation to individual creativity, and workplace creativity in particular, contributes to the growing body of literature that links various individual level factors to creative performance.

Creative self-efficacy. Although several meta-analyses have found a positive relationship between work-related self-efficacy and work-related performance (Judge & Bono, 2001; Sadri & Robertson, 1993; Stajkovic & Luthans, 1998), few studies have

examined self-efficacy in relation to creative performance (e.g., Schack, 1989; Starko, 1988).

In the educational setting, Schack (1989) found self-efficacy to be related to creative productivity among gifted children. Similarly, Starko (1988) evaluated the effectiveness of a gifted program for seventh and eighth grade students and showed that creative productivity (e.g., individual or group investigations of real problems) was significantly correlated with self-efficacy. Furthermore, the number of creative products was a significant predictor of self-efficacy.

In the workplace setting, Redmond, Mumford, and Teach (1993) conducted a study to evaluate the impact of leader behaviors. These researchers found that subordinates who were exposed to leaders who enhanced subordinate self-efficacy produced more creative products (as rated by a panel of expert judges) in an experimental task than subordinates who were not exposed to such leaders (Redmond et al., 1993). Tesluk, Farr, and Klien (1997) suggested that high levels of task specific self-efficacy are important in creative productivity in the workplace. Furthermore, in a review of the creativity literature, Mumford and Gustafson (1988) showed that measures intended to tap self-efficacy were effective predictors of creativity under any setting.

Since previous research has found a positive relationship between self-efficacy and performance (both general performance and creative performance) it is predicted that creative self-efficacy is positively related to creative performance.

H1: A positive relationship exists between creative self-efficacy and creative performance.

Contextual Characteristics Predicting Creative Performance

Although there are numerous contextual factors associated with creative performance (Livingstone et al., 1997), the present study examined two factors – perceived supervisory support for creativity and organizational promotion of risk-taking.

Supervisory support for creativity. Supervisors are critical in influencing employee creativity because they are in leadership positions and have a strong influence on their subordinates. For instance, a leader can bring about large leaps in employee performance by introducing creative or revolutionary ideas, shifting workers' attention, changing the way employees perceive the external work environment, and changing employees' goals and perceptions (Bass, 1985). Leadership style (such as being a democratic leader as well as inducing enthusiasm among employees) can contribute to a creative working climate (Ekvall & Tangeberg-Andersson, 1986). Some research points out how important supervisor characteristics are to the well-being of subordinates. One such study revealed that employees of various technological levels from the civilian and military sectors felt that leader trust and support, goal facilitation, and interaction were work environment variables that were personally beneficial to their well-being (James & James, 1989). These results indicate that employees value a work environment with supportive supervisors whom they can trust and interact with. In fact, Yong (1994) states that possibly the most significant part for encouraging

a creative climate is a trusting relationship between supervisor and subordinate. Similarly, in order to prevent employee creativity from being stifled, it is suggested that supervisors abandon a supervisor – subordinate relationship based on fear and coercion in favor of one based on collaboration and consultation (Schonberger, 1982).

Research has also shown that supervisory support is important for employee creative performance. Alencar and Bruno-Faria (1997) found that supervisory support for creativity was an important stimulus for employee creativity. Similarly, Amabile et al. (1996), found that people will produce more creative work when they perceive that they have support from management and their supervisors. Livingstone et al. (1997) suggested that managers should create a work environment that encourages and supports creativity. In addition, in order to enhance employees' creative performance, it is suggested that supervisory feedback to employees should be positive, given in an informational manner as opposed to a controlling one, and employees should be in positions that allow them high levels of autonomy (Zhou, 1998).

In another study examining the impact of leader behavior and subordinate creativity, Redmond et al. (1993) discovered that subordinates who were exposed to leaders who encouraged them to view problems in alternative ways and to spend more time thinking about the problems produced more creative solutions to problems than subordinates who were not exposed to such leaders. The reason why subordinates who were encouraged by their supervisors to think about their problems generated more creative solutions was because it increased the likelihood of coming up with a creative

solution instead of a stereotypical, textbook answer. In this study, the supervisor was able to influence their subordinates into responding creatively even though it wasn't the specific goal.

Another study aimed at developing and testing a model of individual innovative behavior discovered that the quality of the leader-subordinate relationship is positively correlated to the subordinate's creative and innovative behavior (Scott & Bruce, 1994). Specifically, a high leader-subordinate relationship (characterized by trust, mutual liking, and respect) produces a high level of creative and innovative behavior from the subordinates. Furthermore, the leader's expectations of a subordinate's creative and innovative behavior are positively correlated to the subordinate's creative and innovative behavior, where supervisors who expect subordinates to behave creatively will do so. In other words, role expectations of a supervisor influence subordinate's creativity. The results of this study suggest that the quality of the leader-subordinate relationship can affect a subordinate's creative performance.

In a study investigating the verbal behaviors of a leader and group members' perceptions of the leader, it was hypothesized that a leader's positive social and emotional talk (i.e. positive and supportive comments) would result in group member creativity (Ruzicka, Palisi, Kelly, & Corrado, 1979). However, results revealed that the leader's positive social and emotional talk were not correlated to more creative solutions from group members in a group problem solving task. These results suggest that a leader's positive and supportive verbal behaviors alone do not influence subordinate's level of creativity. Although a leader's verbal behavior and the group's perceptions of

the leader were not associated with creative solutions, the researchers think that they may still be valuable in creative problem solving in combination with other factors such as leader-group discussion and leadership training.

A study done by Fiedler (1962) investigating the effects of a leader's interpersonal attitudes on subordinate creativity revealed contradictory conclusions. In Fiedler's (1962) meta-analysis, a leader's positive social-emotional comments were conducive to subordinate's creativity while negative social-emotional comments were detrimental. In addition, the results of the meta-analysis suggested that there are different ways for leaders to foster group creativity under different circumstances. For instance, when a group of subordinates is undergoing a relatively stress free period, leaders should behave in a nondirective manner in order to foster greater group creativity. On the other hand, if a group of subordinates is undergoing a stressful period, leaders should behave in a directive, task oriented nature in order to foster group creativity.

In a study comparing two types of leaders affecting subordinate creativity, Maier and Mc Ray (1972) discovered that one type of leader had subordinates who behaved more creatively than another type of leader. Specifically, leaders who avoided suggesting or having a preference for a particular solution to a group problem had subordinates who generated more creative solutions to a group problem solving task than subordinates who were under leaders who tried to persuade or coerce them into following their solution and suggestions. These results suggest that the role of the leader affects the way subordinates behave in working conditions where particular leader behaviors (e.g., empowering

subordinates by giving them autonomy) elicited creative responses from subordinates while others (e.g., persuasion, coercion) did not.

The supportiveness of a supervisor as an organizational variable was being studied because the previous studies have shown that a supervisor can influence the creative performance of subordinates and that the supervisor role is critical in influencing or shaping subordinate behavior. Another compelling reason to study leader behaviors affecting subordinate creativity is that little attention has been given toward this area of the creativity literature (Redmond et al., 1993). Previous research conducted in the creativity literature examining supervisory support in relation to subordinate's creative behavior suggests that supervisors can influence subordinate creativity (e.g., Redmond et al., 1993). Therefore, research hypothesis 2 was proposed.

H2: A positive relationship exists between perceived supervisor support for creativity and subordinate's creative performance.

In other words, the more supervisors support and facilitate subordinate creativity (such as supporting employees' new ideas about their jobs) the higher subordinate's creative performance will be.

There are numerous contextual characteristics that relate to creative performance (Livingstone et al., 1997). For instance, Shalley and Perry-Smith (2001) conducted a study that examined the association between external characteristics (e.g., expected evaluation and modeling) and creative performance. Subjects who expected to be evaluated in an informational way before performing a task exhibited higher levels of creativity than those who expected to be evaluated in a controlling way. In addition,

subjects who were given an example of a creative way to perform a task exhibited higher levels of creativity when performing that task than subjects who were not given an example. An interaction effect was also found such that subjects who received the creative example and who expected an informational evaluation style exhibited the highest level of creativity than any other combination of these two conditions. In summary, the environmental characteristics (e.g., expected evaluation style and type of modeling) had both main and interactive effects on individual creative performance.

Research has also investigated the relationship between departmental level characteristics and creative performance. Organizational departments that displayed more creative behaviors were characterized as having an organizational culture that valued change, risk-taking, and competitiveness. In contrast, departments that were less creative focused on the organization's profit and survival (Tesluk et al., 1997). Holleran & Holleran (1976) suggested that in order to foster individual creativity, group members must eliminate, or prevent all together, groupthink. Furthermore, group members should respect and promote each other's individuality, have a sense of trust, openness, and confidence, allow each other to take risks and to fail, and be tolerant of experimentation by other group members.

Organizational Characteristics and Creative Performance

At the organizational level, research has suggested that organizations modify their work environments in order to promote creativity. These modifications include: providing proper resources, creating conditions where it is possible for employees to devote time to creative thought, providing creativity training such as mentoring,

eliminating group-think by forming heterogeneous groups, and having less formalization, standardization, and centralization for jobs that require substantial amounts of creative abilities (Mumford, Whetzel, & Reiter-Palmon, 1997). Livingstone et al. (1997) have also suggested that adequate organizational supplies are important in enhancing employees' creativity. All of these characteristics are part of an organization's climate.

Cecil, Cummings, and Chertkoff (1973) highlight the importance of organizational climate in relation to creative performance by stating in their review that organizational climates that promote submissiveness, dependency, and conformity could hinder creativity among employees. Yamada (1991) supports Cecil et al.'s contention by stating that human resource management in Japan values conformity, harmony, and the ability to work within a group and devalues individuality, all of which seem to inhibit creativity.

Furthermore, content analysis from employee interviews revealed several inhibiting factors to creativity: rigid, hierarchical, authoritarian organizational structure, an organizational culture that does not accept new ideas or promote change or risk, political changes, changes in goals and purposes, conflict with colleagues, and excessive work loads (Alencar & Bruno-Faria, 1997). In fact, Amabile's (1988) summary of interview studies found that environmental factors were mentioned more frequently to influence creativity than personal qualities.

Organizational promotion of risk-taking. Cummings and Mize (1968) posit that the willingness of management to make risky decisions is important for creating an organizational climate conducive to creativity. Furthermore, these researchers posit that

an organizational culture that values original thinking and smart risk-taking is more likely to develop creative ideas. Such a culture requires an open, informal atmosphere (climate) where people are able to take risks.

Risk-taking was examined because it appears that it is a critical variable in creative performance. Similar to creative self-efficacy, if people do not take the risk to bring forth potentially creative ideas then workplace creativity does not take place. A person may have a tremendous amount of creative potential and be in an environment that supports and promotes creative performance, but if the person doesn't take the risk of presenting a new and novel idea, workplace creativity doesn't occur. The creative person must dare to be unconventional in order to break out of the traditional ways of thinking that inhibit creative ideas (Yong, 1994).

It is not enough that individuals are risk-takers in bringing forth novel ideas. An organization's culture can play a big role in whether or not employees bring forth creative ideas (Lubart, 1990). Lubart suggests that organizations that allow employees to bring forth novel ideas may be the ones most likely to produce creative ideas, products, or procedures, which in turn lead to innovative products. On the other hand, organizations that do not allow (whether intentionally or unintentionally) employees to bring forth novel ideas, or worse, criticize them for doing so, may be the ones least likely to produce creative ideas, products, or procedures.

Research has proposed that a supportive classroom environment for creativity includes creating an environment that is conducive to risk-taking. This may be accomplished by implementing non-standard methods of assessment, de-emphasizing

assessment (an emphasis on assessment can reduce desires for risk-taking necessary for creativity), and allowing students independence and freedom of choice (Cole, Sugioka, & Yamagata-Lynch, 1999). Similarly, an environment that is conducive to creativity is one where employees feel free to speak up and where risk-taking is accepted (Moukwa, 1995). Concurring with Moukwa's (1995) study, other research has discovered that the discussion of new and novel ideas occurred most frequently between organizational relationships that were viewed as close friendships as opposed to those based on a status link alone (e.g., estranged coworkers, subordinates) (Albrecht & Hall, 1991). The researchers propose that close friendship relationships are perceived as being the safest situations to bring forth new ideas because individuals feel a sense of trust and comfort. In this case, as in Albrecht and Hall's (1991) study, group members feel at ease discussing ideas with each other and allowing themselves and each other to take risks.

Other researchers have suggested interventions aimed at promoting risk-taking within organizations. For instance, Kindler (1998) suggests that in order to support and promote risk-taking among employees, supervisors, management, and organizational decision makers must increase their tolerance for failure (i.e. not reaching desired goals). This is because employees are more likely to be risk avoidant when they feel vulnerable, as when they feel punished for failure. In the present study the organizational promotion of risk-taking was examined.

From the previous research, it appears that the construct of risk-taking is related to creative performance. Specifically, researchers (e.g., Cole et al., 1999) suggest that promoting a risk-taking environment can support creative performance by encouraging

employees to take the risk of suggesting new ideas. Furthermore, previous research has described creative environments as having a culture that values risk-taking (Tesluk et al., 1997). In summary, there is empirical evidence that links risk-taking at the organizational level to employee creative performance. Therefore, it is predicted that employees who perceive their organization as supporting and fostering risk-taking will then engage in more creative behavior.

H3: A positive relationship exists between an organizational promotion of risk-taking and employees' creative performance.

Interactional Models of Predicting Creativity

The interactionist model of creativity proposes that creativity is the result of a complex person-situation interaction (Woodman & Schoenfeldt, 1990; Mellou, 1996; Smuts, 1992). In other words, creativity is the result of individuals interacting with their environment. Woodman and Schoenfeldt's (1990) model views creativity as the result of personality dimensions (e.g., locus of control, self-esteem), individual cognitive ability (e.g., divergent thinking, cognitive complexity), and environmental factors (e.g., organizational climate, task and time constraints) interacting together.

Other interactionist models of creativity are very similar. For instance, Mellou's (1995) model of creativity proposes that the relationship between the social environment and creative behavior is reciprocal. The social environment influences the cognitive and personality characteristics of a person and the person's cognitive and personality characteristics influence the social environment as well. Similarly, other researchers propose that creativity results from individual, group, and organizational characteristics

interacting with each other (Schoenfeldt & Jansen, 1997). Schoenfeldt and Jansen (1997) believe that the interactionist model of creativity is the best model for conducting creativity research because it examines different factors together rather than as mutually exclusive units. Other researchers hold similar views as well. Woodman, Sawyer, and Griffin (1993) propose that in order to fully understand creative behavior in complex social situations, creative processes, creative products, creative persons, and creative situations must all be examined under the interactionist model of studying creativity.

George and Zhou (2001) conducted a study that examined the interactive effects between leaders and employees in relation to creative performance. They investigated how openness to experience and conscientiousness interacted with different external factors to predict creative behaviors. The results of their study indicated that individuals who were high on openness to experience, received positive feedback, had (1) undefined methods of doing their jobs, or (2) had unclear ends to their jobs exhibited high levels of creativity. Conversely, individuals who were high on conscientiousness, were closely monitored by their supervisors, (1) received inaccurate communication from their coworkers, or (2) did not receive constructive help from coworkers, or (3) were in a negative work environment, exhibited the lowest levels of creative behavior.

Oldham and Cummings (1996) examined the relationship between job complexity, supervision style, and employees' creative personality and overall creative behavior. Results indicated that employees who held complex jobs, received non-controlling supervision and support from their supervisors, and were themselves creative

individuals, exhibited the highest levels of overall creative performance (Oldham &Cummings, 1996).

Zhou and George (2001) discovered that employees with high levels of job dissatisfaction displayed the highest levels of creativity when they received useful coworker feedback, coworker support and help, had high continuance commitment, and perceived that the organization supported creativity.

In another interactional study, Multon, Brown, and Lent's (1991) meta-analysis examined self-efficacy in a classroom setting. Their meta-analysis revealed that academic self-efficacy was positively related to academic performance. The researchers also discovered several moderators to this relationship. Achievement status of students was the first moderator. The relationship between self-efficacy and academic performance was stronger among low-achieving students than those making normal academic progress. Age was a second moderator, where older students (college or high school) displayed a stronger relationship between self-efficacy and academic performance than younger (elementary) students. Lastly, type of performance measure was the third moderator, where the strongest relationship between self-efficacy and academic performance was found by using basic skills measures, followed by classroom based performance measures (e.g., grades), then standardized achievement tests. Based on the work of Multon et al., (1991), the current study proposes that employee's creative performance will be moderated by the individual characteristic creative self-efficacy.

In line with previous research examining creative performance from an interactionist perspective (e.g., Multon et al., 1991), the present study examined whether

a relationship exists between creative self-efficacy and creative performance. Furthermore, the current study examined whether employees' levels of creative self-efficacy was a moderating factor between the organizational promotion of risk-taking – creative performance relationship in a similar way as Multon and colleague's (1991) study investigated how specific characteristics (e.g., achievement status, age) moderated the relationship between academic self-efficacy and academic performance. Therefore, research hypothesis 4 was proposed.

> H4: Employees' level of creative self-efficacy will moderate the relationship between the organizational promotion of risk-taking and creative performance. Specifically, a stronger relation between an organizational promotion of risk-taking and creative performance exists for individuals who are high on creative self-efficacy.

Since the present study seeks to examine whether a relationship exists between creative self-efficacy and creative performance, creative self-efficacy was examined to determine if it is a moderating factor between the supervisor support – subordinate creative performance relationship. Therefore, research hypothesis 5 was proposed.

> H5: Employee's level of creative self-efficacy will moderate the relationship between the supervisor's support for creativity and the employee's creative performance. Specifically, a stronger relation between the employee's perceived supervisor support for creativity and creative performance exists for individuals who are high on creative self-efficacy.

In order to ensure that individual characteristics other than the ones under investigation are neither accounting for nor suppressing the association between predictor and criterion variables, several control variables were measured. Creative performance is dependent upon several factors. Mood has been associated with creative productivity (Madjar et al., 2002) and therefore was assessed and controlled for in the final analysis. An individual's level of risk-taking can potentially introduce methodological confounds since previous research has found that an individual's risk-taking propensity is related to creative performance (e.g., Glover, 1977; Pankove & Kogan, 1968). Therefore, individual levels of risk-taking was assessed and controlled for in the final analysis. Finally, one of the most obvious factors of creative performance is a person's individual level of creativity. Therefore, creative personality was assessed and controlled for in the final analysis.

Method

Participants

There were a total of 111 (males = 67, females = 42) participants that participated in the current study, two of who did not specify their gender. Study participants were currently employed graduate and undergraduate students attending San Jose State University. All graduate students were taken from the university's MBA program. Undergraduate students were students from business, engineering, science, applied sciences and arts, social science, education, humanities and arts, and social work majors. Study participants participated in the study for course credit or voluntary participation. Most of the participants (63%) were between the ages of 18 - 24, 27% between 25 - 34,

9% between 35 - 44, and 1% between 45 - 54. Most of the participants (56%) were employed on a part time basis while 44% were full time employees. The average tenure of the participants was two years and three and a half months. Most participants (36%) viewed their jobs as being complex, 33% viewed their jobs as being somewhat complex, 25% viewed their jobs as being uncomplicated, and 6% felt their jobs were very complex. Most of the participants (35%) identified themselves as Asian, 29% were white/Caucasian, 13% were Mexican American, 10% were Filipino, 5% did not specify their ethnicity, 4% were African American, 3% were non-Mexican American Hispanic, and 2% were Pacific Islander. The majority of participants (56%) majored in the college of business, 12% did not specify their major college, 10% majored in the college of engineering, 8% majored in the college of science, 5% majored in the college of applied sciences and arts, 5% majored in the college of social sciences, 2% majored in the college of education, 2% majored in the college of humanities and arts, and 1% majored in the college of social work.

There were a total of 22 (males = 11, females = 11) supervisors that participated in the present study. These were supervisors of a subset of the 111 participants in the present study. Most of the supervisors (32%) were between the ages of 18-24, 23% were between the ages of 25-34, 23% were between the ages of 35-44, 18% were between the ages of 45-54, and 5% were between the ages of 55-65. The age distribution of the supervisors indicates that slightly more than half (55%) of them were between the ages of 18-34, representing a fairly young age of supervisors. Most (48%) indicated they worked in the public sector, followed by 38% working in the private sector, and 14% reported

working in the non-profit sector. The average tenure of the supervisors was three years and 10 months. The fairly short tenure of supervisors reflects their fairly young age.

Measures

Creative self-efficacy. Gist and Mitchell (1992) defined self-efficacy as an individual's judgment of their perceived capability for accomplishing a certain task, and in the case of the current study a creativity task. The instrument used to measure participants' creative self-efficacy was taken from a study conducted by Tierney (1997). The instrument contains three items. A sample item is "I feel that I am good at generating novel ideas." For a complete list of items please refer to the Appendix. The participants rate each item on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). In the present study the scale was modified for a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater levels of creative self-efficacy. The present study yielded a Cronbach's alpha of .72.

Supervisory support for creativity. Perceived supervisory support for creativity was assessed using a four-item measure developed by Madjar and colleagues (2002). The measure assesses the employees' perceptions of the amount of support for creativity they receive from their supervisors. The original measure was modified for use with the current study by replacing the word coworker with supervisor on one of the original items. A sample item is "My supervisor discusses with me my work-related ideas in order to improve them." For a complete list of items please refer to the Appendix. In the original instrument, participants rate each item on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). For the present study the scale was modified to

a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scores were averaged to form a composite score. Higher scores indicate greater perceptions of supervisor support for creative behaviors. The present study yielded a Cronbach's alpha of .78.

Organizational promotion of risk-taking. Organizational promotion of risk-taking was assessed using a six-item measure specifically assessing top management's level of risk aversion. This measure was developed by Jaworski and Kohli (1993) and was chosen because top management was judged to be an accurate representation of an organization, since it is in fact top management who make key organizational decisions and set behavioral examples for lower organization members to follow. Respondents rated each statement on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). A sample item is: "Top managers in this business unit like to 'play it safe'." For a complete list of items please refer to the Appendix. The scores were averaged to form a composite score. Higher scores indicate that respondents perceive that their organization is highly promoting of risk-taking among employees. The present study measured the scale to have a Cronbach's alpha of .75.

Mood. Both positive and negative mood were assessed using the Job Affect Scale (JAS; Brief, Burke, George, Robinson, & Webster, 1988). Participants were asked to indicate on each item how they felt during the past week on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). For the present study, response items were changed from 1 (strongly disagree) to 5 (strongly agree). The items assessing positive mood are: active, strong, enthusiastic, peppy, elated, and sluggish (reversed

scored). The items assessing negative mood are: distressed, scornful, hostile, fearful, at rest (reversed scored), nervous, and jittery. A total of 13 items comprise the mood measure that yields two subscales: one for positive mood and one for negative mood. Scores for the items in each subscale were averaged to arrive at a composite score for that particular subscale. Higher scores indicate greater positive mood on the positive mood subscale and higher scores indicate greater negative mood on the negative mood subscale. The present study measured a Cronbach's alpha for the positive and negative mood subscales as .72 and .81 respectively.

Willingness to take risks. Participants' willingness to take risks was assessed using a four-item measure developed by Gomez-Mejia and Balkin (1989). Respondents rated each statement on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). A sample item is: "I am not willing to take risks when choosing a job or a company to work for." For a complete list of items please refer to the Appendix. The scores were averaged to form a composite score. Higher scores indicate a greater willingness to take risks. The present study measured the scale to have a Cronbach's alpha of .61, indicating poor internal consistency. Given the low reliability coefficient and the fact that the variable was a control variable, this variable was not used in further analyses.

Creative personality. Creative-relevant personality characteristics were assessed using the 30-item Creative Personality Scale (CPS) (Gough, 1979) taken from the Adjective Check List (ACL) (Gough & Heilbrun, 1965, as cited in Oldham & Cummings, 1996). Respondents placed a check mark next to the adjective that they think describes

them. Eighteen of the 30 adjectives describe highly creative individuals. Sample adjectives are individualistic, inventive, and unconventional. Each of these 18 adjectives is given a score of +1. The other 12 adjectives describe less creative people. Sample adjectives are cautious, conservative, and conventional. Each of these 12 adjectives is given a score of –1. For a complete list of items see the Appendix. The values were summed to form a CPS index, where the higher the score the more creative-relevant personal characteristics a person has. The present study revealed that the CPS has a Cronbach's alpha of .73.

Creative performance. Creativity is the production of novel and useful ideas, products, or procedures by a single person or group of persons working together (Amabile, 1988). Employee creativity was measured by using a 13-item scale developed by Zhou and George (2001). The scale asks for supervisors to rate how characteristic an employee's behavior is according to the 13 items. On a 5-point Likert scale, supervisors rate employees from 1 (not at all characteristic) to 5 (very characteristic). A sample item is for supervisors to rate how characteristic an employee is according to the statement: "Not afraid to take risks." For a complete list of items refer to the Appendix. The 13 items were averaged to form a single creativity score where the higher the score, the higher the creative performance. For the present study, the scale had a Cronbach's alpha of .90.

For the current study, the 13-item scale developed by Zhou and George (2001) was modified and administered as a self-report measure. This was done to ensure that participants' creative performance measures were obtained if the response rate of

supervisor ratings of employee creative performance turned out to be low. The wording of each item was changed to refer to the survey participant. Response format, scale, and response options remained the same. A sample item is for research participants to rate how characteristic they are according to the statement: "I suggest new ways of performing work tasks."

Supervisor ratings of creative performance were correlated with participants' self-ratings of creative performance to determine how similar the ratings were. The Pearson correlation between supervisor and self-ratings of creative performance was not significant ($r = .32, p > .05$). This suggests that participants rated their level of creative performance differently than their supervisors. Because of the small number of supervisor ratings that were obtained, participants' self-ratings of their creative performance were used in all analyses.

Procedure

Data were collected from classes at San Jose State University campus through contacting individual professors and asking if they were willing to have their students surveyed for research purposes and through the university's research subject pool. At the start of every data collection session, participants were given instructions to participate in the study and were told that in order to participate they had to be currently employed because the survey asked about opinions of the work environment. Participants who were self-employed and did not work for a supervisor were asked to skip the items about their supervisor. After they completed the survey they were given a survey packet to give

to their supervisor for them to fill out. This survey packet contained a consent form and the 13-item supervisor rating of creative performance scale.

Research participants were given a survey containing all necessary measures from the experimenter. They read and signed the consent form. Participants were ensured in the consent form that the information they provide will only be used for research purposes and that only the experimenter will have access to the data. Participants responded to seven scales: creative self-efficacy, perceived supervisor support for creativity, willingness to take risks, organizational promotion of risk-taking, mood, creative personality, and a self-rating creative performance scale. After they completed the survey, they received a survey for employee creativity in a sealed envelope that was to be given to their immediate supervisor. Once the supervisor completed the employee creativity measure, they sent it to the experimenter in an enclosed self-addressed stamped envelope.

Results

Descriptive Statistics and Bivariate Correlations

Table 1 displays the means, standard deviations, intercorrelations, and scale reliabilities of all variables used.

Creative self-efficacy. Descriptive statistics of the sample indicated that respondents had a fairly high level of creative self-efficacy ($M = 3.97$, $SD = .57$). The relatively small standard deviation indicates that most participants responded very close to the mean. In other words, participants felt that they were fairly capable at performing creatively in their work. The scale had a high level of kurtosis (5.46, $SEM = .46$)

indicating that it was a somewhat peaked distribution and therefore violated assumptions of normality. The variable was transformed using a square root transformation in order to obtain a more normal distribution as suggested by Tabachnick and Fidell (2001). After examination of the histograms of both the untransformed and transformed variables it was concluded that the two variables did not seem to be significantly different. Furthermore, the analyses were run twice using the original untransformed variable and the transformed variable resulting in no differences between the two. Therefore, all the analyses presented throughout the present study used the original untransformed variable.

Supervisory support for creativity. Descriptive statistics for this scale indicated that respondents felt that their supervisors gave them moderate amounts of support for creative performance on the job ($M = 3.62$, $SD = .76$). The distribution was not significantly skewed nor did it have a significant amount of kurtosis, as these statistics did not exceed +1.96 or –1.96 (Tabachnick & Fidell, 2001), therefore they met assumptions of normality. It should be noted that a few participants did not fill out this measure because they were self-employed. The exact number of participants was not known because there was no item on the questionnaire asking respondents if they were self-employed.

Organizational promotion of risk-taking. Descriptive statistics for this scale indicated that respondents' perceptions of organizational promotion of risk-taking was that they neither agreed nor disagreed that their organization promoted employees to take risks on the job ($M = 2.84$, $SD = .67$). The distribution was not significantly skewed or had a significant amount of kurtosis, therefore it met assumptions of normality.

Mood. Descriptive statistics for this scale indicated that overall respondents were in a fairly neutral mood ($M = 2.83$, $SD = .37$). In other words, participants were neither in a completely positive or negative mood. The distribution was not significantly skewed or had a significant amount of kurtosis, therefore it met assumptions of normality.

Creative personality. The highest possible score on the CPS was +18 and indicated that a person has a very creative personality. This occurs when an individual marks all creative personality adjectives and none of the non-creative personality adjectives. The lowest possible score was –12 and indicated that a person does not have a creative personality. This occurs when an individual marks all non-creative personality adjectives and none of the creative personality adjectives. Descriptive statistics for this scale indicated that respondents had a somewhat creative personality ($M = 5.28$, $SD = 3.44$). The fairly large standard deviation indicated a fairly wide range in creative personality scores. In other words, the participants consisted of a fairly wide range of non-creative and creative personalities but that in general participants had a somewhat creative personality. The distribution met assumptions of normality.

Creative performance. Descriptive statistics for the self-rating creativity scale indicated that respondents felt that they were somewhat creative on their jobs ($M = 3.56$, $SD = .61$). The variable met assumptions of normality. Descriptive statistics for the supervisor ratings of employee creativity indicated that supervisors felt that employees were somewhat creative on their jobs ($M = 3.65$, $SD = .67$). The relatively small standard deviation indicated that most supervisors rated their subordinates closely to the mean.

Bivariate Correlations

The predictor variables used in the present study were creative self-efficacy, perceived supervisor support for creative performance, and organizational promotion of risk-taking. The control variables used were mood and creative personality. The criterion variable was creative performance. Table 1 displays the correlation matrix between predictor, control, and criterion variables. Table 1 shows that creative performance was significantly correlated with creative self-efficacy in the expected positive direction ($r = .56, p < .01$). Perceived supervisor support was unexpectedly not significantly correlated with creative performance ($r = .12, p > .05$). Lastly, organizational promotion of risk-taking was not significantly correlated with creative performance ($r = .09, p > .05$).

Table 1 also indicates that none of the predictor variables were intercorrelated with each other. Creative self-efficacy was not correlated with perceived supervisor support ($r = -.02, p > .05$) or organizational promotion of risk-taking ($r = .16, p > .05$). Furthermore, perceived supervisor support was not correlated with organizational promotion of risk-taking ($r = .20, p > .05$). This was a favorable situation because this suggests that the predictor variables do not have any common variance between them. As a result, the predictor variables can account for more variance and are less likely to cancel out any significant effects they may have.

The control variable creative personality was significantly correlated with the criterion variable creative performance ($r = .36, p < .01$). This was correlated in the expected positive direction. The results suggest that individuals with very creative personalities will have high levels of creative performance. The control variables

negative mood (r = -.12, p > .05) and positive mood (r = .11, p > .05) were not correlated with creative performance for the present study. This suggests that an individual's mood state does not affect their level of creative performance. Despite this finding, mood was still used as a control variable as suggested by Madjar et al. (2002). Creative self-efficacy was used as a control variable in testing Hypotheses 2 through 5 and as previously mentioned was significantly correlated with creative performance.

The control variable negative mood was correlated with the control variable positive mood in the expected negative direction (r = -.39, p < .01). This suggests that individuals who are experiencing high levels of negative mood will also be experiencing low levels of positive mood. The control variable creative personality was not significantly correlated with the control variables positive mood (r = .06, p > .05) or negative mood (r = -.20, p > .05). This suggests that mood states do not affect an individual's creative personality. Since creative self-efficacy was used as a control variable in later hypotheses testing, intercorrelations with other control variables were examined. The control variable creative self-efficacy was significantly correlated with the control variable creative personality (r = .40, p < .01). This suggests that individuals who have creative personalities also have high levels of creative self-efficacy. Creative self-efficacy was not correlated with positive (r = .03, p > .05) or negative mood (r = -.10, p > .05). This suggests that mood states do not affect individual's levels of creative self-efficacy.

Hypotheses Testing

Hypothesis 1. Hypothesis 1 stated that a positive relationship exists between creative self-efficacy and creative performance. A hierarchical multiple regression analysis (MR) was used to test this relationship. In the first step the control variables (positive and negative mood, and creative personality) were entered. In the second step, the predictor variable creative self-efficacy was entered and the change in R-squared was examined. Results of the hierarchical multiple regression analysis and beta weights are summarized in Table 2. Results showed that creative self-efficacy predicted creative performance ($\Delta R^2 = .21, p < .001$) above and beyond the control variables. The full model accounted for 34% of the variance in creative performance scores, a large effect according to Cohen's (1988, as cited in Keppel, Saufley, & Tokunaga, 1992) rule. Furthermore, the standardized beta weight for creative self-efficacy was significant ($\beta = .50, p < .01$). Therefore, creative self-efficacy is a significant predictor of creative performance after controlling for creative personality and mood. The results from the hierarchal MR suggest that in order for employees to behave creatively on the job they should have a high level of creative self-efficacy, or an individual's perceived capability for accomplishing a creativity task.

Hypothesis 2. Hypothesis 2 stated that a positive relationship exists between perceived supervisory support for on the job creativity and creative performance, where the higher the levels of perceived supervisor support for creativity are, the higher employee's creative performance will be. The analyses used was similar to the one used for Hypothesis 1 except perceived supervisor support was used in place of creative self-

efficacy. Furthermore, creative self-efficacy was used as a control variable. Results of the hierarchical multiple regression analysis and beta weights are summarized in Table 3. Results showed that perceived supervisor support did not predict creative performance ($\Delta R^2 = .01, p > .05$) above and beyond the control variables. The full model accounted for 35% of the variance in perceived supervisor support scores, a large effect according to Cohen's (1988, as cited in Keppel, Saufley, & Tokunaga, 1992) rule. Furthermore, the standardized beta weight for perceived supervisor support was not significant ($\beta = .10, p > .05$). Therefore, it can be concluded from the results of the present study that perceptions of supervisor support for on the job creative performance may not make a significant difference in creative performance scores.

Hypothesis 3. Hypothesis 3 stated that a positive relationship exists between an organizational promotion of risk-taking and employees' creative performance, where the higher the level an organization promotes risk-taking, the higher their employees' creative performance will be. The analyses used was similar to the one used for Hypothesis 2 except organizational promotion of risk-taking was used in place of perceived supervisor support for creativity. Results of the hierarchical multiple regression analysis and beta weights are summarized in Table 4. Results showed that an organizational promotion of risk-taking did not predict creative performance ($\Delta R^2 = .00, p > .05$) above and beyond the control variables. The full model accounted for 34% of the variance in organizational promotion of risk-taking scores, a large effect according to Cohen's (1988, as cited in Keppel, Saufley, & Tokunaga, 1992) rule. Furthermore, the standardized beta weight for organizational promotion of risk-taking was not significant

($\beta = .01, p > .05$). Therefore, it can be concluded from the results of the present study that an organizational promotion of risk-taking may not be necessary for employees to behave creatively on the job.

Hypothesis 4. Hypothesis 4 stated that employee's level of creative self-efficacy moderates the relationship between the organizational promotion of risk-taking and creative performance. Despite the fact that the main effect tested in Hypothesis 3 was not significant, Hypothesis 4 was tested using a moderated hierarchical MR in order to determine whether an interaction existed. In the first step the control variables creative personality, positive and negative mood were entered. In the second step organizational promotion of risk-taking and creative self-efficacy were entered. In the third and final step the cross product of organizational promotion of risk-taking and creative self-efficacy was entered. The organizational promotion of risk-taking by creative self-efficacy interaction was not statistically significant ($\beta = .27, \Delta R^2 = .00, p > .05$). This indicates that an individual's creative self-efficacy does not moderate the relationship between an organizational promotion of risk-taking and the individual's creative performance.

Hypothesis 5. Hypothesis 5 stated that employee's level of creative self-efficacy moderates the relationship between perceived supervisor support for creativity and creative performance. Despite the fact that the main effect in Hypothesis 2 was not significant, Hypothesis 5 was tested using a moderated hierarchical MR in order to determine whether an interaction existed. The analysis used was similar to the one used for Hypothesis 4 except perceived supervisor support for creativity was used in place of

organizational promotion of risk-taking. The results were similar to the results obtained in testing Hypothesis 4. The perceived supervisor support by creative self-efficacy interaction was not statistically significant ($\beta = 1.01$, $\Delta R^2 = .01$, $p > .05$). This indicates that an individual's creative self-efficacy does not moderate the relationship between an individual's perceptions of supervisor support and the individual's creative performance.

Discussion

The purpose of the present study was to examine the main and moderating effects of (i) creative self-efficacy, (ii) perceived supervisor support for creativity, and (iii) perceived organizational promotion of risk-taking in relation to employee creative performance. It was expected that creative self-efficacy, perceived supervisor support for creativity, and perceived organizational promotion of risk-taking would each independently predict creative performance. Furthermore, it was expected that creative self-efficacy would moderate the relationship between perceived organizational promotion of risk-taking and creative performance. In addition, it was expected that creative self-efficacy would moderate the relationship between perceived supervisor support for creativity and creative performance. By investigating an interaction effect, the present study aimed to address the relatively small amount of research that has examined creativity from an interactionist perspective.

There were three hypotheses that proposed a main effect regarding creative performance. Hypothesis 1 proposed that a positive relationship exists between creative self-efficacy and creative performance. This hypothesis was supported and results suggest that creative self-efficacy is a significant predictor of creative performance.

Hypothesis 2, which stated that a positive relationship exists between perceived supervisor support for creativity and creative performance, was not supported. The results of the present study suggest that perceived supervisor support for creativity might not be a significant predictor of creative performance. This finding is contradictory to previous research (e.g., Alencar & Bruno-Faria, 1997; Amabile et al., 1996) that found a positive relationship between perceived supervisor support and creative performance.

This inconsistency of results may be due to a few reasons. This may be due to methodological reasons. For instance, Alencar and Bruno-Faria's conclusions were based on interview studies, a qualitative assessment tool, while the present study used a quantitative assessment tool. Furthermore, it may be possible that the instrument used by Amabile et al. (1996) to measure perceived supervisor support for creativity was a more sensitive instrument than the one used for the present study. Another reason may be that over half of the participants (56%) were part-time employees. In addition, most (63%) of the participants were relatively young (between the ages 18-24). The part-time employment status and relatively young age of most of the participants might indicate that they are employed in more entry-level jobs. Entry-level jobs are often more structured, as opposed to having ambiguous means in accomplishing goals, suggesting that the tasks and duties are more procedural and may not require incumbents to perform creatively. Furthermore, employees with part-time, entry-level procedural jobs may not need support from their supervisor to perform creatively. Thus, most of the participants with these entry-level part-time jobs may not have perceived much, if any, supervisor support for creativity.

Hypothesis 3, which stated a positive relationship exists between organizational promotion of risk-taking and creative performance, was not supported. Results suggest that organizational promotion of risk-taking may not be a significant predictor of creative performance. The finding that organizational promotion of risk-taking was not related to creative performance is contradictory to some of the previous research findings suggested by several researchers (e.g., Tesluk et al., 1997; Cole et al., 1999).

This inconsistency of results may be due to a few reasons. First, studies that have found a positive relationship between organizational promotion of risk-taking and creative performance may have used different measures. It is quite possible that the instrument used to measure organizational promotion of risk-taking in the present study was not as sensitive an instrument as those used by Tesluk et al., (1997) and Cole et al., (1999). Furthermore, because most participants were part-time employees with the possibility of being in an entry-level position, they may not be in positions to make decisions that will significantly affect their organizations. As a result, they may not perceive that their organization promotes them to be more risk-taking.

There were two hypotheses that proposed an interaction effect regarding creative performance. Hypothesis 4 proposed that creative self-efficacy would moderate the relationship between organizational promotion of risk-taking and creative performance, where levels of creative performance change as the levels of individual creative self-efficacy change when organizational promotion of risk-taking is held constant. The results did not support this hypothesis, and suggests that an individual's creative self-efficacy does not moderate the relationship between organizational promotion of risk-

taking and creative performance. Hypothesis 5 proposed that creative self-efficacy moderated the relationship between perceived supervisor support and creative performance, where levels of creative performance change as the levels of creative self-efficacy change when levels of perceived supervisor support are held constant. The results did not support this hypothesis and suggests that an individual's level of creative self-efficacy may not moderate the relationship between perceived supervisor support and creative performance.

It can be concluded from the results of the present study that individual creative self-efficacy is an important variable in predicting creative performance. It is important for employees to have high levels of creative self-efficacy if they are to perform creatively on the job. These results concur with the creativity research (e.g., Pearlmutter, 1998; Tesluk et al., 1997). Results of the current study suggest that organizational promotion of risk-taking may not be an important variable in predicting creative performance. In other words, if an organization promoted risk-taking among its employees it would not necessarily result in employee creativity on the job. The results suggest that perceived supervisor support for creativity might not be an important variable in predicting creative performance. It can be concluded from these results that subordinates do not need to perceive that they are receiving support for creative behavior from their supervisors in order to perform creatively on the job.

It can be concluded that individual levels of creative self-efficacy is not a moderating variable between organizational promotion of risk-taking or perceived supervisor support for creativity and creative performance. Furthermore, this suggests

that creative self-efficacy, organizational promotion of risk-taking, and perceived supervisor support for creativity are mutually exclusive.

Several implications can be drawn from the results of the present study. As the overall results have indicated, creative self-efficacy was the only predictor variable that predicted creative performance. The only control variable that predicted creative performance was creative personality. This implies that if organizations value creative performance from their employees, they should employ individuals who have high levels of creative self-efficacy. Organizations can either test or screen applicants for creative self-efficacy or recruit those individuals identified to have high levels of creative self-efficacy. It may also be possible to increase individual levels of creative self-efficacy. For instance, research has found that leaders can build subordinate self-efficacy (Redmond et al., 1993). Organizations may want to consider using these methods for their existing employees if they want them to perform more creatively on the job.

Although the variables organizational promotion of risk-taking and perceptions of supervisor support for creativity were not significant predictors of creative performance in the present study, the results cannot absolutely conclude that these variables are mutually exclusive from creative performance because previous research has linked organizational promotion of risk-taking (e.g., Cole et al., 1999) and perceived supervisor support for creativity (e.g., Amabile et al., 1996) to creative performance.

Furthermore, the interactional hypotheses tested in the present study were not supported. This meant that creative self-efficacy was not a moderating variable on the relationship between perceived supervisor support for creativity and creative

performance, and the relation between organizational promotion of risk-taking and creative performance. This should not, however, imply that the relationship resulting in creative performance may be simpler and more straightforward than what other research has suggested. For instance, Woodman and Schoenfeldt's (1990) model of creativity states that creativity is the result of personality dimensions (e.g., locus of control), individual cognitive ability (e.g., divergent thinking), and environmental factors (e.g., organizational climate) interacting together. The results of the present study indicate that creative self-efficacy is directly related to creative performance and that creative performance is not moderated by any of the other variables that were tested. This does not necessarily conclude that other variables would not moderate this relationship, only that the present study did not reveal any moderating relationships.

Limitations

There were several shortcomings of the present study. First, individual risk-taking did not have an acceptable level of reliability for research purposes. This may be due to the fact that the instrument used to measure willingness to take risks has only four items. As a result, this measure was not used in the analyses of the present study as originally intended. This resulted in the study having less ability to control extraneous variables. Another methodological weakness was the use of self-ratings of creative performance in place of participants' supervisor ratings, as originally intended by the authors of the creativity measure. This was done in order to ensure that there would be adequate data for the creative performance variable. Use of self-ratings of creative performance may introduce an individual personal bias toward creative performance

ratings. Furthermore, the results indicated that the self-ratings were not significantly correlated with the supervisor ratings, suggesting that supervisors rated subordinates differently than subordinates rated themselves.

Another weakness of the present study was the sample used. The sample was a heterogeneous group that had individuals from different organizations, jobs, and sectors of the work force (e.g., private sector, public sector, non-profit organizations). Results may have been different if the participants used were all from one or two similar organizations as other studies in the creativity literature have done (e.g., Zhou & George, 2001). A homogeneous sample is subjected to the same climate, environment, and treatment. Therefore members of the organization are more likely to form roughly similar impressions and interpretations of the work environment. On the other hand, a heterogeneous sample is not. They have different experiences and perceptions even more so than a homogeneous sample, and it is possible that a heterogeneous sample can have a wider range of perceptions, interpretations, and judgments than a homogeneous sample.

Strengths

As stated earlier in the introduction, few studies have examined creative self-efficacy in relation to creative performance (e.g., Schack, 1989; Starko, 1988). The primary strength of the present study was the conclusion that creative self-efficacy was directly related to creative performance. The present study confirms Schack (1989) and Starko's (1988) findings and has contributed to the specific body of literature in the creativity literature. The use of control variables (e.g., mood, creative personality) in the analyses was another strong point of the present study. This insured that extraneous

variables did not account for variance that the predictor variables were proposed to account for. Finally, although supervisors did not rate participants' creative performance the same way as participants rated their own creative performance, the use of self-report measures ensured that creative performance data would be obtained even when the number of supervisor ratings was low.

Future Research

Psychological phenomena (e.g., creative performance) are not likely to operate in a vacuum. It is likely that a lot of psychological phenomena result from a certain amount of interaction between other phenomena, whether psychological in nature or not. With this in mind, more interactional research should be done in the creativity literature. When conducting research concerning workplace creativity, it is suggested that the sample be more homogeneous, such as using a sample from a single organization. This is done in order to limit extraneous variables such as different organizational cultures. More exploratory research should be conducted concerning workplace creativity. This should be done in order to explore what other variables and combinations of variables predict workplace creativity. Furthermore, this research should be replicated in order to establish the predictive ability of these variables. Workplace creativity is still a fairly new area in the field of industrial/organizational psychology and exploratory research would add to the body of knowledge in the field and increase our understanding of workplace creativity. Finally, it is suggested that future research be conducted with organizations that actually value workplace creativity since this is the segment of the population that the results will be most applicable and generalizeable to. This is done mainly to

overcome differences between using a particular sample (e.g., school children) to generalize results to a different population (e.g., automobile designers).

Conclusion

In conclusion, the present study discovered that an individual's level of creative self-efficacy predicted their level of creative performance when their current mood and creative personality were taken into account. From this conclusion, it can be implied that if organizations want their employees to perform creatively at their work they should either increase employees' levels of creative self-efficacy (e.g., through various training programs), or recruit individuals who already have high levels of creative self-efficacy. Some suggestions for additional research that came from the present study include doing more exploratory research as well as to continue building upon previous research. More research should be done trying to find which variables, alone and in combination with other variables, predict employee creativity. The research on workplace creativity is fairly new and researchers are continually gaining more knowledge of the factors that are related to employee creativity.

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Table 1: Descriptive statistics, correlation matrix, and scale reliabilities.

Variable	Mean	S.D.	1	2	3	4	5	6	7
1 Creative Self-Efficacy	3.96	.61	**.72**						
2 Supervisor Support	3.60	.78	-.02	**.80**					
3 Organizational Risk	2.86	.62	.16	.20	**.75**				
4 Positive Mood	3.26	.64	.03	.14	-.04	**.72**			
5 Negative Mood	2.45	.72	-.10	-.14	-.13	-.39**	**.81**		
6 Creative Personality	5.24	3.44	.40**	.09	-.01	.06	-.20	**.73**	
7 Creative Performance	3.56	.61	.56**	.12	.09	.11	-.12	.36**	**.90**

* $p < .05$, ** $p < .01$.

Note: Scale reliabilities in bold

Table 2

Summary of Hierarchical Regression Analysis for Variables Predicting Creative Performance: Hypothesis 1 (N=95)

Variable	β		ΔR^2	
Step 1				
Positive Mood	.09		.14	**
Negative Mood	-.01			
Creative Personality	.15			
Step 2				
Creative Self-Efficacy	.50	**	.21	**

*$p < .05$, **$p < .01$

Note: β values are reported after the main effects have been entered.

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting Creative Performance: Hypothesis 2 (N=95)

Variable	β	ΔR^2
Step 1		
Positive Mood	.08	.34 **
Negative Mood	.00	
Creative Personality	.14	
Creative Self-Efficacy	.50 **	
Step 2		
Supervisor Support	.10	.01

*$p < .05$, **$p < .01$

Note: β values are reported after the main effects have been entered.

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Creative Performance: Hypothesis 3 (N=95)

Variable	β	ΔR^2
Step 1		
Positive Mood	.09	.34 **
Negative Mood	-.01	
Creative Personality	.15	
Creative Self-Efficacy	.50 **	
Step 2		
Organizational Promotion of Risk-Taking	.01	.00

*$p < .05$, **$p < .01$

Note: β values are reported after the main effects have been entered.

Table 5

Summary of Moderated Hierarchical Regression Analysis for Variables Predicting Creative Performance: Hypothesis 4 (N=95)

Variable	β	ΔR^2
Step 1		
Positive Mood	.09	.14 **
Negative Mood	-.01	
Creative Personality	.15 **	
Step 2		
Creative Self-Efficacy	.50 **	.21 **
Organizational Promotion of Risk-Taking	.01	
Step 3		
Creative Self-Efficacy x Organizational Promotion of Risk-Taking		.00

*$p < .05$, **$p < .01$

Note: β values are reported after the main effects have been entered.

Table 6

Summary of Moderated Hierarchical Regression Analysis for Variables Predicting Creative Performance: Hypothesis 5 (N=95)

Variable	β	ΔR^2
Step 1		
Positive Mood	.08	.14 **
Negative Mood	.00	
Creative Personality	.14	
Step 2		
Creative Self-Efficacy	.50 **	.22 **
Supervisor Support	.10	
Step 3		
Creative Self-Efficacy x Perceived Supervisor Support		.01

*$p < .05$, **$p < .01$

Note: β values are reported after the main effects have been entered.

Appendix

Description of Measures

Creative Self-Efficacy

Instructions: For each of the following statements, circle the number on the 5-point scale (1 = strongly disagree, 5 = strongly agree) that best represents your feelings toward the statement. Please be honest. No one else will see your responses and they will remain confidential.

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1. I feel that I am good at generating novel ideas.
2. I have the confidence in my ability to solve problems creatively.
3. I have a knack for further developing the ideas of others.

Employee Creativity

Instructions: For each of the following statements, circle the number on the 5-point scale (1 = not at all characteristic, 5 = very characteristic) that best characterizes the employee's work behavior. Please be honest. No one else will see your responses and they will remain confidential.

---

1. Suggests new ways to achieve goals or objectives.
2. Comes up with new and practical ideas to improve performance.
3. Searches out new technologies, processes, techniques, and/or product ideas.
4. Suggests new ways to increase quality.

5. Is a good source of creative ideas.

6. Is not afraid to take risks.

7. Promotes and champions ideas to others.

8. Exhibits creativity on the job when given the opportunity to.

9. Develops adequate plans and schedules for the implementation of new ideas.

10. Often has new and innovative ideas.

11. Comes up with creative solutions to problems.

12. Often has a fresh approach to problems.

13. Suggests new ways of performing work tasks.

Creative Personality

Instructions: Place a check mark next to the adjective that you think describes you best. Please be honest. No one else will see your responses and they will remain confidential.

---

1. Capable
2. Clever
3. Confident
4. Egotistical
5. Humorous
6. Informal
7. Individualistic
8. Insightful
10. Self-confident
11. Sexy
12. Snobbish
13. Unconventional
14. Cautious
15. Commonplace
16. Conservative
17. Conventional

9. Intelligent
19. Interests Wide
20. Inventive
21. Original
22. Reflective
23. Resourceful
24. Suspicious
18. Dissatisfied
25. Honest
26. Interests Narrow
27. Mannerly
28. Sincere
29. Submissive
30. Phony

Mood

Instructions: For each of the following items, circle the number on the 5-point scale (1 = strongly disagree, 5 = strongly agree) that best represents how you felt during the past week. Please be honest. No one else will see your responses and they will remain confidential.

---

1. Active
2. Strong
3. Enthusiastic
4. Peppy
5. Elated
6. Sluggish
7. Distressed
8. Scornful
9. Hostile
10. Fearful
11. At Rest
12. Nervous
13. Jittery

Supervisory Support for Creativity

Instructions: For each of the following items, circle the number on the 5-point scale (1 = strongly disagree, 5 = strongly agree) that best represents how you feel about your supervisor. Please be honest. No one else will see your responses and they will remain confidential.

---

1. My supervisor discusses with me my work-related ideas in order to improve them.
2. My supervisor is almost always supportive when I come up with a new idea about my job.
3. My supervisor gives me useful feedback about my ideas concerning the workplace.
4. My supervisor is always ready to support me if I introduce an unpopular idea or solution at work.

Willingness to Take Risks

Instructions: Circle your level of agreement on the 5-point scale (1 = strongly disagree, 5 = strongly agree) for each of the following statements. Please be honest. No one else will see your responses and they will remain confidential.

---

1. I am not willing to take risks when choosing a job or a company to work for.
2. I prefer a low risk/high security job with a steady salary over a job that offers high risks and high rewards.

3. I prefer to remain on a job that has problems that I know about rather than take the risks of working at a new job that has unknown problems even if the new job offers greater rewards.

4. I view risk on a job as a situation to be avoided at all costs.

Organizational Promotion of Risk-Taking

Instructions: Circle your level of agreement on the 5-point scale (1 = strongly disagree, 5 = strongly agree) for each of the following statements. Please be honest. No one else will see your responses and they will remain confidential.

---

1. Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.

2. Top managers here accept occasional new product failures as being normal.

3. Top managers in this business unit like to take big financial risks.

4. Top managers here encourage the development of innovative marketing strategies, knowing well that some will fail.

5. Top managers in this business unit like to "play it safe."

6. Top managers around here like to implement plans only if they are very certain that they will work.
